FACTS ON FILE

EMSP

Environmental Management Science Program

Project Highlights

The Environmental Management Science Program (EMSP) is funding basic research projects focused on solving the most difficult problems that threaten the closure plans of DOE sites. This fact sheet highlights just one.

Development of Inorganic Ion Exchangers for Nuclear Waste Remediation

This research is concerned with the development of highly selective inorganic ion exchangers for the removal of primarily cesium and strontium from nuclear tank waste and from ground water. The underlying thermodynamic, kinetic, and molecular basis of ion exchange is being elucidated through detailed structural studies. The compounds being synthesized include those having cavity or tunnel structures, layer structures, and amorphous gels. These innovative materials have many potential applications for cleanup of high level waste as well as low level contamination in ground water and process waters.

Locations: Texas A&M University, Oak Ridge National Laboratory

Year of Award: 1996

Amount of Award: $599,999

Office of Environmental Management (EM)
Problem Area: High Level Waste

Office of Science (SC) Scientific Category/Sub-Category: Separations Chemistry/Ligand Design and Ion Exchange

Research Value/Impact: Thus far, researchers have determined how crystalline silicotitanate is able to take up cesium from highly acidic and basic solutions containing high levels of electrolyte. In addition, they are obtaining thermodynamic and kinetic data, which combined with structural data, will allow engineers to apply this exchange to a variety of remediation problems.

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More Information on the Web:
http://www.em.doe.gov/science or
http://www.id.doe.gov/emsystems/emsp